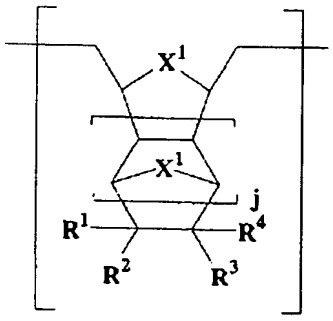
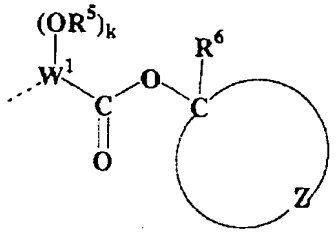
WHAT IS CLAIMED IS:

1. A hydrogenated ring-opening metathesis polymer which contains, if necessary, a structural unit [A] of the following general formula [1]:



[1]

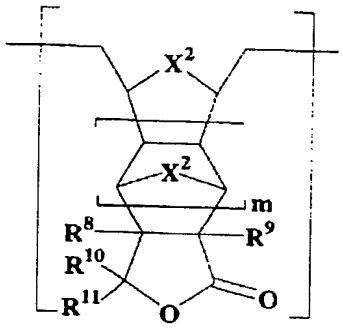
[wherein, at least one of R^1 to R^4 represents a functional group having a tertiary ester group of a cyclic alkyl of the following general formula [2]:



[2]

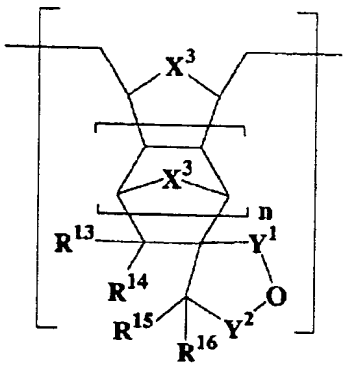
(wherein, the chain line represents a connecting means. R^5 represents a hydrogen atom, a linear, branched or cyclic alkyl group having 1 to 10 carbon atoms, a linear, branched or cyclic alkoxyalkyl group having 2 to 10 carbon atoms, or a linear, branched or cyclic acyl group having 1 to 10 carbon atoms. R^6 represents a linear, branched or cyclic alkyl group having 1 to 10 carbon atoms. W^1 represents a

single bond or a (k+2)-valent hydrocarbon group having 1 to 10 carbon atoms.) Z represents a divalent hydrocarbon group having 2 to 15 carbon atoms, and forms a single ring or a cross-linked ring together with carbon atoms to be bonded. k represents 0 or 1.) and the remaining groups of R^1 to R^4 are selected each independently from a hydrogen atom, linear, branched or cyclic alkyl groups having 1 to 20 carbon atoms, halogens, linear, branched or cyclic halogenated alkyl groups having 1 to 20 carbon atoms, linear, branched or cyclic alkoxy groups having 1 to 20 carbon atoms, linear, branched or cyclic alkoxyalkyl groups having 2 to 20 carbon atoms, linear, branched or cyclic alkylcarbonyloxy groups having 2 to 20 carbon atoms, arylcarbonyloxy groups having 6 to 20 carbon atoms, linear, branched or cyclic alkylsulfonyloxy groups having 1 to 20 carbon atoms, branched or cyclic alkylsulfonyloxy groups, arylsulfonyloxy groups having 6 to 20 carbon atoms, linear, branched or cyclic alkoxycarbonyl groups having 2 to 20 carbon atoms, or linear, branched or cyclic alkoxycarbonylalkyl groups having 3 to 20 carbon atoms, and X^1s may be the same or different and represent -O- or $-CR^7_2-$ (wherein, R^7 represents a hydrogen atom or a linear or branched alkyl group having 1 to 10 carbon atoms.). j represents an integer of 0 or 1 to 3.], and contains at least a structural unit [B] of the following general formula [3]:



[3]

[wherein, R^8 to R^{11} each independently represent a hydrogen atom or a linear, branched or cyclic alkyl group having 1 to 10 carbon atoms, and X^2s may be the same or different and represent -O- or $-CR^{12}{}_2-$ (wherein, R^{12} represents a hydrogen atom or a linear or branched alkyl group having 1 to 10 carbon atoms.). m represents an integer of 0 or 1 to 3.], and/or a structural unit [C] of the following general formula [4]:



[4]

[wherein, R^{13} to R^{16} each independently represent a hydrogen atom or a linear, branched or cyclic alkyl group having 1 to 10 carbon atoms, and X^3s may be the same or different

and represent -O- or $-CR^{17}{}_2-$ (wherein, R^{17} represents a hydrogen atom or a linear or branched alkyl group having 1 to 10 carbon atoms.). One of Y^1 and Y^2 represents -(C=O)- and the other of Y^1 and Y^2 represents $-CR^{18}{}_2-$ (wherein, R^{18} represents a hydrogen atom or a linear or branched alkyl group having 1 to 10 carbon atoms.). n represents an integer of 0 or 1 to 3.],

wherein at least one of X^1 in the structural unit [A] of the general formula [1], X^2 in the structural unit [B] of the general formula [3] and X^3 in the structural unit [C] of the general formula [4] represents -O-, and

the molar ratio of [A]/([B] and [C]) is 0/100 to 99/1, and the ratio of the weight-average molecular weight Mw to the number-average molecular weight Mn (Mw/Mn) is 1.0 to 2.0.

2. The hydrogenated ring-opening metathesis polymer according to Claim 1 wherein the molar ratio of the structural unit [A] of the general formula [1] to the structural unit [B] of the general formula [3] and the structural unit [C] of the general formula [4] ([A]/([B] and [C])) is 25/75 to 90/10.

3. The hydrogenated ring-opening metathesis polymer according to Claim 1 wherein the molar ratio of the struc-

tural unit [A] of the general formula [1] to the structural unit [B] of the general formula [3] and the structural unit [C] of the general formula [4] ([A]/([B] and [C])) is 30/70 to 85/15.

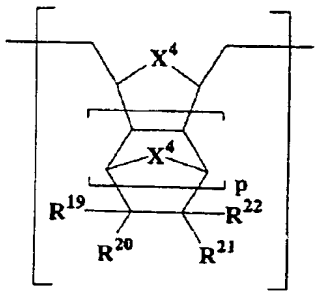
4. The hydrogenated ring-opening metathesis polymer according to Claim 1 wherein at least one of X^1 in the structural unit [A] of the general formula [1], X^2 in the structural unit [B] of the general formula [3] and X^3 in the structural unit [C] of the general formula [4] represents -O-, and the others represent $-CH_2-$.

5. The hydrogenated ring-opening metathesis polymer according to Claim 1 wherein a functional group having a tertiary ester group of a cyclic alkyl of the general formula [2] selected as at least one of R^1 to R^4 in the general formula [1] is a 1-alkylcyclopentyl ester, 1-alkylnorbotnyl ester or 2-alkyl-2-adamantyl ester.

6. The hydrogenated ring-opening metathesis polymer according to Claim 1 wherein W^1 in the general formula [2] represents a single bond.

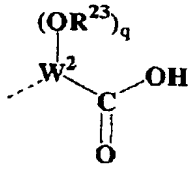
7. The hydrogenated ring-opening metathesis polymer according to Claim 1 wherein the material further contains,

if necessary, a structural unit [D] of the following general formula [5]:



[5]

[wherein, at least one of R^{19} to R^{22} represents a functional group having a carboxyl group of the following general formula [6]:



[6]

(wherein, the chain line represents a connecting means. R^{23} represents a hydrogen atom, a linear, branched or cyclic alkyl group having 1 to 10 carbon atoms, a linear, branched or cyclic alkoxyalkyl group having 2 to 10 carbon atoms, or a linear, branched or cyclic acyl group having 1 to 10 carbon atoms. W^2 represents a single bond or a (k+2)-valent hydrocarbon group having 1 to 10 carbon atoms. q represents 0 or 1.) and the remaining groups of R^{19} to R^{22} are selected each independently from a hydrogen atom,

linear, branched or cyclic alkyl groups having 1 to 20 carbon atoms, halogens, linear, branched or cyclic halogenated alkyl groups having 1 to 20 carbon atoms, linear, branched or cyclic alkoxy groups having 1 to 20 carbon atoms, linear, branched or cyclic alkoxyalkyl groups having 2 to 20 carbon atoms, linear, branched or cyclic alkylcarbonyloxy groups having 2 to 20 carbon atoms, arylcarbonyloxy groups having 6 to 20 carbon atoms, linear, branched or cyclic alkylsulfonyloxy groups having 1 to 20 carbon atoms, branched or cyclic alkylsulfonyloxy groups, arylsulfonyloxy groups having 6 to 20 carbon atoms, linear, branched or cyclic alkoxycarbonyl groups having 2 to 20 carbon atoms, or linear, branched or cyclic alkoxycarbonylalkyl groups having 3 to 20 carbon atoms, and X^4s may be the same or different and represent -O- or $-CR^{24}{}_2-$ (wherein, R^{24} represents a hydrogen atom or a linear or branched alkyl group having 1 to 10 carbon atoms.). p represents an integer of 0 or 1 to 3.].

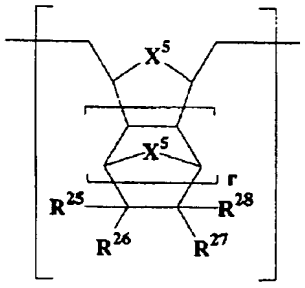
8. The hydrogenated ring-opening metathesis polymer according to Claim 7 wherein the molar ratio of the structural unit [A] of the general formula [1], the structural unit [B] of the general formula [3] and the structural unit [C] of the general formula [4] to the structural unit [D] of the general formula [5] ([A]+[B]+[C])/[D] is from 100/0

to 20/80.

9. The hydrogenated ring-opening metathesis polymer according to Claim 7 wherein X^4 in the general formula [5] represents -O- or $-CH_2-$.

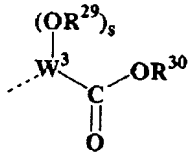
10. The hydrogenated ring-opening metathesis polymer according to Claim 7 wherein W^2 in the general formula [6] represents a single bond.

11. The hydrogenated ring-opening metathesis polymer according to Claim 1 wherein the material further contains, if necessary, a structural unit [E] of the following general formula [7]:



[7]

[wherein, at least one of R^{25} to R^{28} represents a functional group having a carboxylate group of the following general formula [8]:



[8]

(wherein, the chain line represents a connecting means. R^{29} represents a hydrogen atom, a linear, branched or cyclic alkyl group having 1 to 10 carbon atoms, a linear, branched or cyclic alkoxyalkyl group having 2 to 10 carbon atoms, or a linear, branched or cyclic acyl group having 1 to 10 carbon atoms. R^{30} represents a linear or branched alkyl group having 1 to 10 carbon atoms, a linear, branched or cyclic alkoxyalkyl group having 2 to 10 carbon atoms, or a linear, branched or cyclic halogenated alkyl group having 1 to 20 carbon atoms. W^3 represents a single bond or a (k+2)-valent hydrocarbon group having 1 to 10 carbon atoms. s represents 0 or 1.) and the remaining groups of R^{25} to R^{28} are selected each independently from a hydrogen atom, linear, branched or cyclic alkyl groups having 1 to 20 carbon atoms, halogens, linear, branched or cyclic halogenated alkyl groups having 1 to 20 carbon atoms, linear, branched or cyclic alkoxy groups having 1 to 20 carbon atoms, linear, branched or cyclic alkoxyalkyl groups having 2 to 20 carbon atoms, linear, branched or cyclic alkylcarbonyloxy groups having 2 to 20 carbon atoms, arylcarbonyloxy groups having 6 to 20 carbon atoms, linear, branched or cyclic alkylsul-

fonyloxy groups having 1 to 20 carbon atoms, branched or cyclic alkylsulfonyloxy groups, arylsulfonyloxy groups having 6 to 20 carbon atoms, linear, branched or cyclic alkoxycarbonyl groups having 2 to 20 carbon atoms, or linear, branched or cyclic alkoxycarbonylalkyl groups having 3 to 20 carbon atoms, and X^5s may be the same or different and represent -O- or $-CR^{31}{}_2-$ (wherein, R^{31} represents a hydrogen atom or a linear or branched alkyl group having 1 to 10 carbon atoms.). r represents an integer of 0 or 1 to 3.].

12. The hydrogenated ring-opening metathesis polymer according to Claim 11 wherein the molar ratio of the structural unit [A] of the general formula [1], the structural unit [B] of the general formula [3] and the structural unit [C] of the general formula [4] to the structural unit [E] of the general formula [7] ([A]+[B]+[C])/[E] is from 100/0 to 40/60.

13. The hydrogenated ring-opening metathesis polymer according to Claim 11 wherein X^5 in the general formula [7] represents -O- or $-CH_2-$.

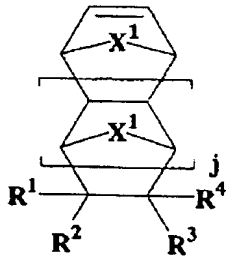
14. The hydrogenated ring-opening metathesis polymer according to Claim 11 wherein W^3 in the general formula [7]

represents a single bond.

15. The hydrogenated ring-opening metathesis polymer according to Claim 11 wherein the number-average molecular weight in terms of polystyrene measured by GPC is from 500 to 200,000.

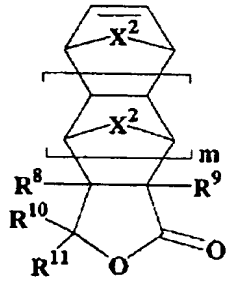
16. A method of producing a hydrogenated ring-opening metathesis polymer of Claim 1, comprising

using, if necessary, a cyclic olefin monomer of the following general formula [9]:



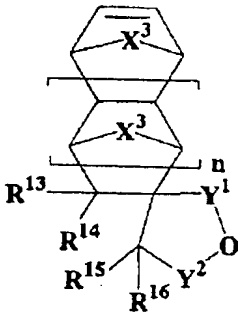
[9]

(wherein, R^1 to R^4, X^1 and j are as defined in Claim 1.) and, at least a cyclic olefin monomer of the following general formula [10]:



[10]

(wherein, R^8 to R^{11}, X^2 and m are as defined in the general formula [3] in Claim 1.) and/or a cyclic olefin monomer of the following general formula [11]:



[11]

(wherein, R^{13} to R^{16}, X^3 , Y^1, Y^2 and n are as defined in the general formula [4] in Claim 1.), wherein at least one of X^1 in the general formula [9], X^2 in the general formula [10] and X^3 in the general formula [11] represents -O-, and

polymerizing these monomers with a ring-opening metathesis catalyst, and hydrogenating the resulted polymer in the presence of a hydrogenation catalyst.

17. The production method according to Claim 16 wherein the charging molar ratio of a cyclic olefin monomer of the general formula [9] to a cyclic olefin monomer of the general formula [10] and a cyclic olefin monomer of the general formula [11] is from 0/100 to 99/1.

18. The production method according to Claim 16 wherein the charging molar ratio of a cyclic olefin monomer

of the general formula [9] to a cyclic olefin monomer of the general formula [10] and a cyclic olefin monomer of the general formula [11] is from 25/75 to 90/10.

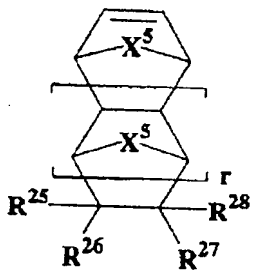
19. The production method according to Claim 16 wherein at least one of X^1 in a cyclic olefin monomer of the general formula [9], X^2 in a cyclic olefin monomer of the general formula [10] and X^3 in a cyclic olefin monomer of the general formula [11] represents -O-, and the others represent $-CH_2-$.

20. The production method according to Claim 16 wherein a functional group having a tertiary ester group of a cyclic alkyl of the general formula [2] selected as at least one of R^1 to R^4 in the general formula [9] is a 1-alkylcyclopentyl ester, 1-alkylnorbotnyl ester or 2-alkyl-2-adamantyl ester.

21. The production method according to Claim 16 wherein at least part of a tertiary ester group of a cyclic alkyl in the general formula [2] is decomposed, after hydrogenation, into a carboxyl group.

22. The production method according to Claim 16 wherein the method further uses a cyclic olefin monomer of

the following general formula [12]:



[12]

(wherein, R^{25} to R^{28}, X^5 and r are as defined in the general formula [7] in Claim 11.).

23. The production method according to Claim 22 wherein at least part of an ester group is decomposed, after hydrogenation, into a carboxyl group.

24. The production method according to Claim 16 wherein the ring-opening metathesis catalyst is a living ring-opening metathesis catalyst.

25. The production method according to Claim 16 wherein polymerization is conducted with a living ring-opening metathesis catalyst in the presence of an olefin or diene.